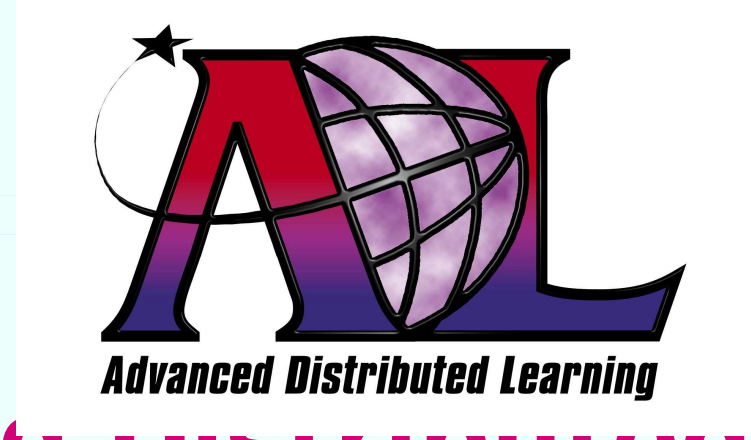


Advanced Distributed Learning Briefing to the U.S. Air Force DL Conference

R.Tom Goodden, DPA

Director of Institutional Learning

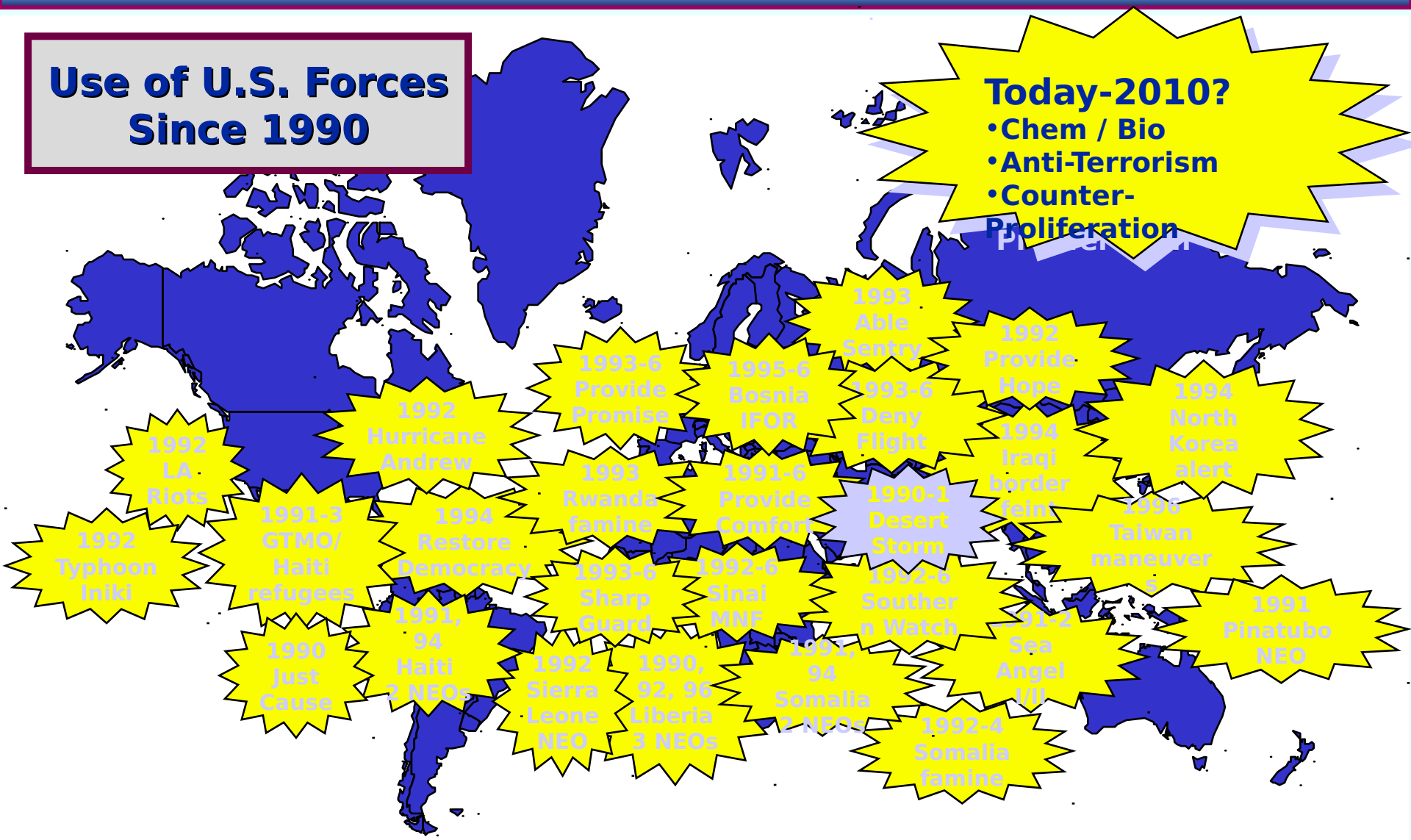
Office of the Under Secretary of Defense (Readiness)

Agenda

- DoD Strategic Plan
- DoD Implementation Plan
- Sharable Courseware Object Ref Model
- DoD Co-Laboratory
- DoD ADL Portal Site
- Content Conversion Process
- Internet Infrastructure

Trained and Ready for What?

Future Missions Like the Recent Past -- and More



ADL Vision and Strategy

Provide access to the highest quality education and training, tailored to individual needs, delivered cost effectively, anywhere and anytime.

- Exploit existing network-based technologies
- Create platform-neutral, reusable courseware and content to lower costs
- Promote widespread collaboration to satisfy common needs
- Enhance performance with emerging and next-generation learning technologies
- Develop common framework that drives COTS product cycle
- Establish a coordinated implementation process

“Learning” encompasses . . .

- Training
- Education
- Performance Aids

ADL Standards Initiative

The ADL standards work is less about technical standards than:

- Building consensus among users, developers and industry
- Acting as a catalyst to bring together key players
- Forging alliances in strategic technical areas
- Accelerating the pace of technology adoption for learning anytime, anywhere

"enlightened self-interest" at work here

Web-based Learning Content Issues

For starters…

- Can’t move a course from one LMS to another
- Can’t reuse content “chunks” across different LMS systems
- Can’t create searchable content or media repositories across different LMS environments

….etc.

These are key enabling capabilities…

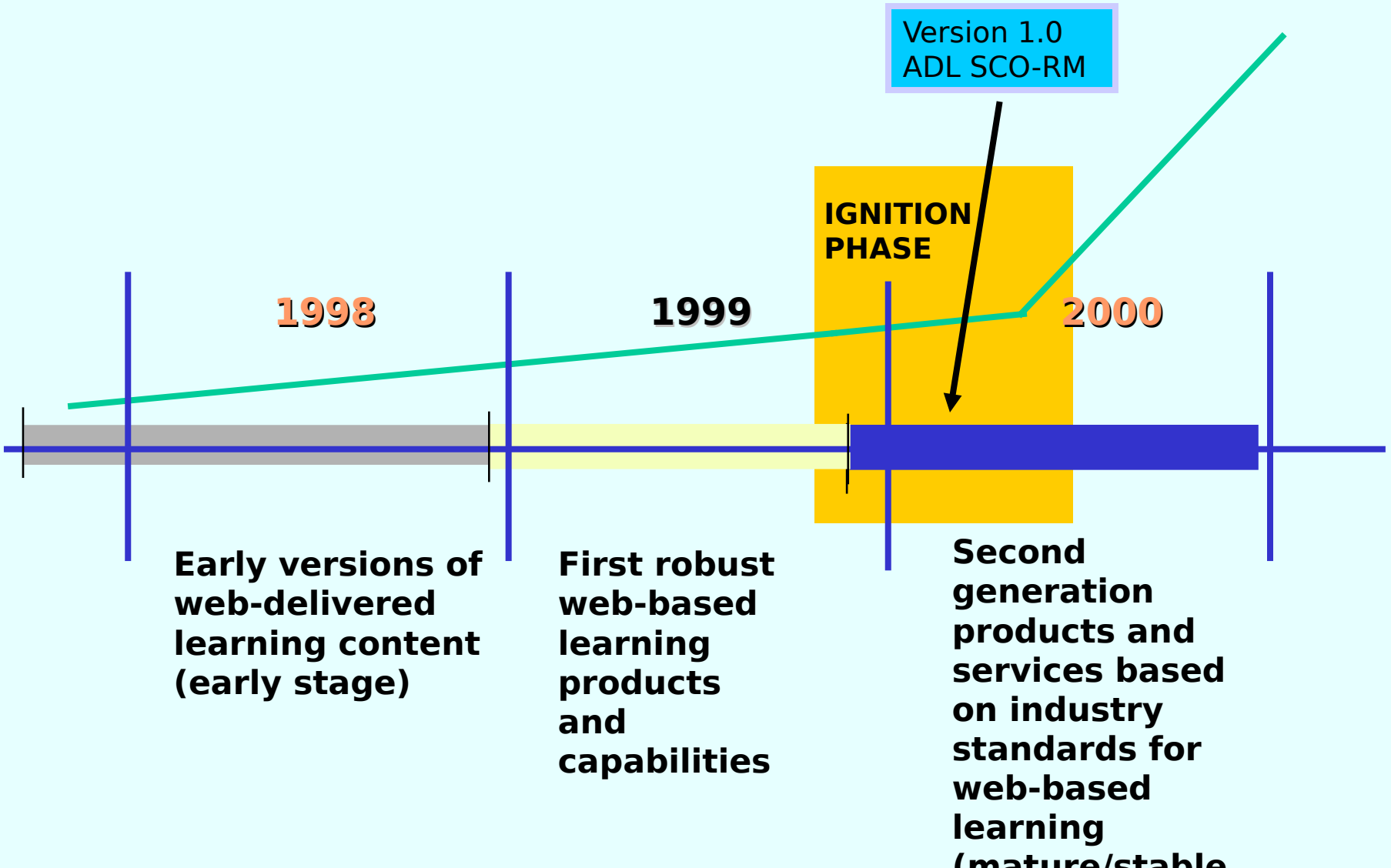
The ADL SCORM is a first step toward a larger vision

The ADL SCORM – What is it?

- A Sharable Courseware Object Reference Model that defines a web-based learning “content model”
- A set of interrelated specifications designed to meet DoD’s high level “-ilities”
- A process to knit together disparate groups and interests
- A bridge from general emerging technologies to commercial implementations

…an evolving document to collect all the “bits and pieces” in one place

Key ADL Milestones


Version 1.0
ADL SCO-RM
IGNITION PHASE
1998
1999
2000
Early versions of web-delivered learning content (early stage)
First robust web-based learning products and capabilities
Second generation products and services based on industry standards for web-based learning

SCORM Scope

ADL SCORM's three major topics:

- XML-based Course Structure Format (moving courses from one LMS to another)
- Run Time Environment: common communications between content and LMS
- Application of Metadata: to courses, content "chunks", and raw media elements (for searchable libraries/repositories

What We Get (near term)

- Small, reusable, discoverable content “chunks”
- Discoverable media assets
- Ability to find and move courses

This is a critical starting point, but there is much more to be done!

What Should You Do?

- Start designing content with reuse in mind
- Try to design content in small, logical “chunks”
- Monitor evolution of key standards
- Tell your vendors you want standards-based products
- Develop an organizational strategy for adopting distributed learning that match your core competencies
- Don’t put off “dealing” with web-based learning or your competition will eat your lunch

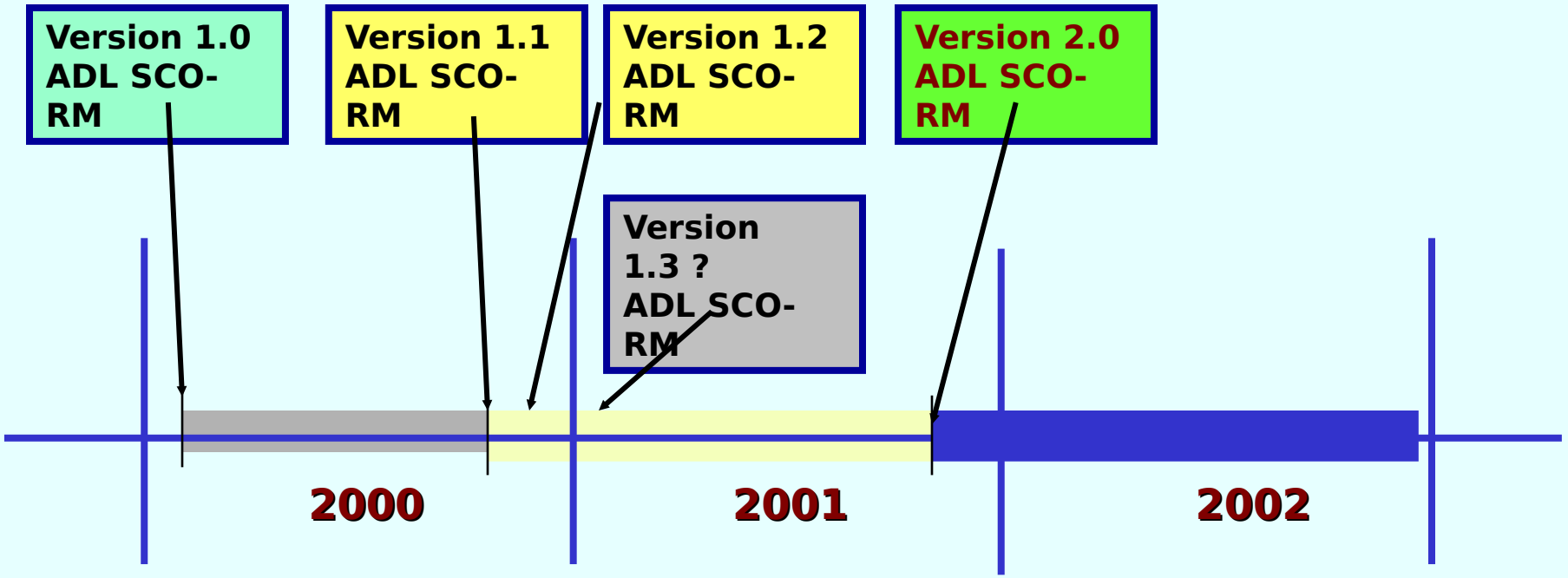
Start by calling the Co-Lab

SCORM – What's Next

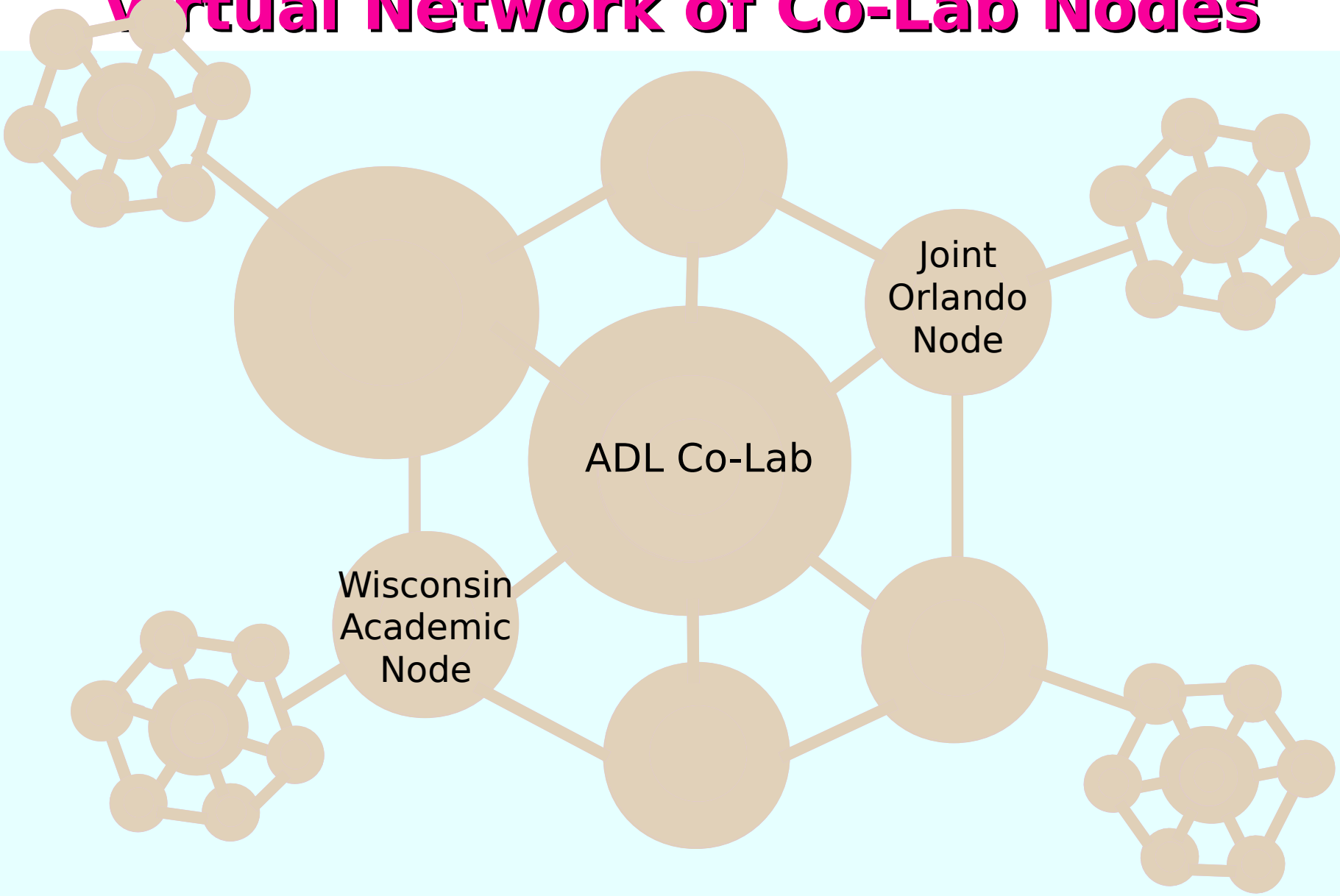
- Version 1.1 "clean up" only – no change of scope
- Version 1.2 to hopefully add content/course packaging
- Version 1.3 ?? Other possible additions? QTI
- Version 2.0x to address next generation technologies:
  - From SCORM to LARM – the Learning Architecture Reference Model
- Hand-off to industry as we go along (as happened with the Internet

We have a roadmap

Expected SCORM Evolution



ADL Co-Laboratory
Virtual Network of Co-Lab Nodes



Initial Set of ADL Co-Lab Projects

- **Open Architecture Tools and Standards**
- **Compliance Testing Software**
- **Content Architecture**
- **Interoperable Learning Management System(s)**
- **Federal ADL Developers and Implementation Courses**
- **“First Responders” -- Interagency Training**
- **Federal Learning Exchange (Portal)**
- **Joint Virtual Learning Environment**
- **On-the-Job Performance Support Systems**
- **Advice and Help Desk**
- **Federal Learning Technology Resource Center**
- **Expert System Based (intelligent tutoring tools)**
- **Advanced Business Models for Federal ADL**

Content 2000

- DoD Implementation Plan shows Services will convert about 10% of courses per year for five years.
- DoD has 30,000 courses of over 40 hour duration.

How do we convert the rest?

The PETE Concept: A Prototype for Community Colleges

- DoD Implementation Plan shows Services will convert about 10% of courses per year for five years.
- DoD has 30,000 courses of over 40 hour duration.

How do we convert the rest?

The PETE Concept: A Prototype for Community Colleges

- DoD courses have much in common with civilian courses (DoL crosswalk is a given)
- Community Colleges teach civil courses at rock-bottom rates.
- Community College courseware can add to:
  - Certificates
  - Associate degrees
  - Credit toward a bachelor's degree

A Hypothetical Conversion Concept

- Apex Community College (ACC) wants to add a course to their service area, but surveys say there are not enough takers,
- ACC approaches Co-Lab (clearinghouse)
- Finding a match, Service approaches ACC
- The Service offers ACC a CRADA
  - Cooperative R&D Agreement is a contract
  - ACC gets the Service paper POI
  - ACC develops Course X to Service specs
  - Service approves ACC ADL version

The PETE Concept: A Prototype for Community Colleges

- Southern Maine Technical College, a PETE institution provides environmental training to the Environmental Protection Agency
- The Portsmouth Naval Ship Yard needs web-based environmental training for their workers
- The Department of the Navy sees potential
- The Navy plans to offer SMTC a CRADA
  - Cooperative R&D Agreement is a contract
  - SMTC shapes their courses to PNSY needs
  - Navy CNET approves SMTC ADL version
- The USCG at Portsmouth sends learners with like needs
- The DoL sees an training opportunity for “at risk” youth
- All join efforts to demonstrate how a CC can provide DoD (and DoL) instruction via ADL ***at cost!***

Prototype

- Carnegie Mellon, Pennsylvania N. Guard, TRADOC partnership
- 88M10 MOSC Course
- CMU exportable courseware templates

POC: Randy Trzeciak
randallt@andrew.cmu.edu

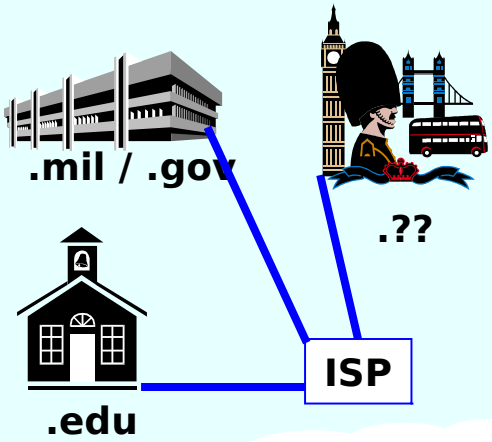
Other DoD Initiatives

- eArmyU - Due for award in 2000 Sec'y Caldera's recruiting initiative.
- Navy College Program - Spring 2001 Recompetition will broaden program

Issue: Internet Security

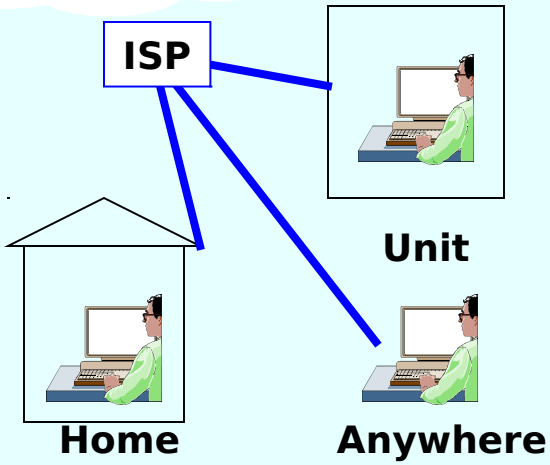
JV 2010 Readiness Requirement

Information Superiority



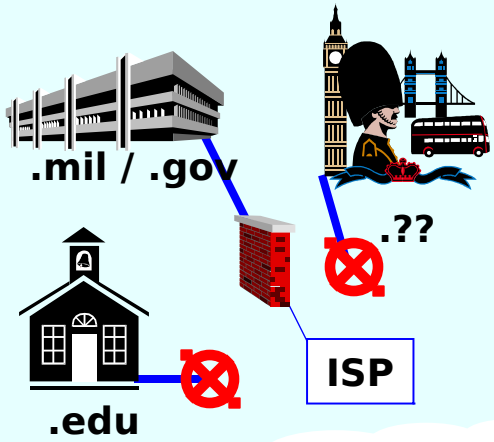
Self-healing Internet

- ***Robust***
- ***Flexible***
- ***Adaptive***
- ***Sufficient***



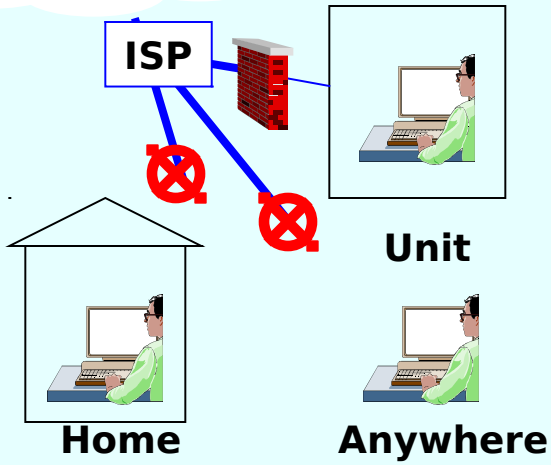
Proposed Requirement

Information Assurance

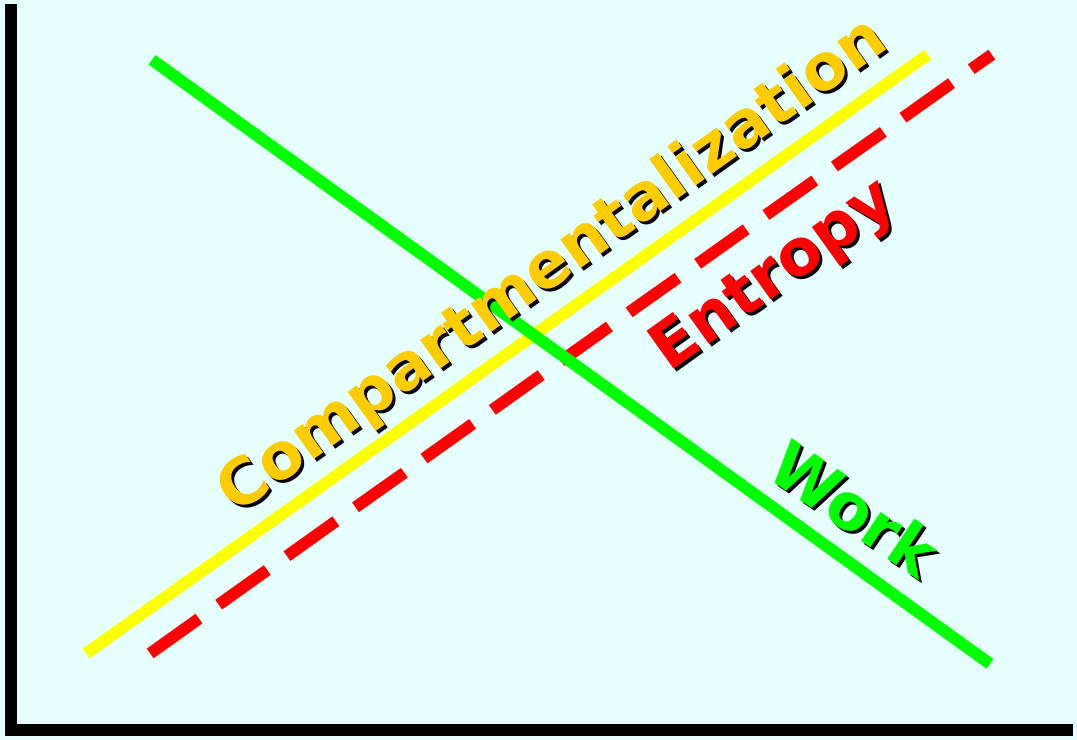


- ~~***Robust***~~
- ~~***Flexible***~~
- ~~***Adaptive***~~
- ~~***Sufficient***~~
- ***Secure***

Rule-based NIPRnet

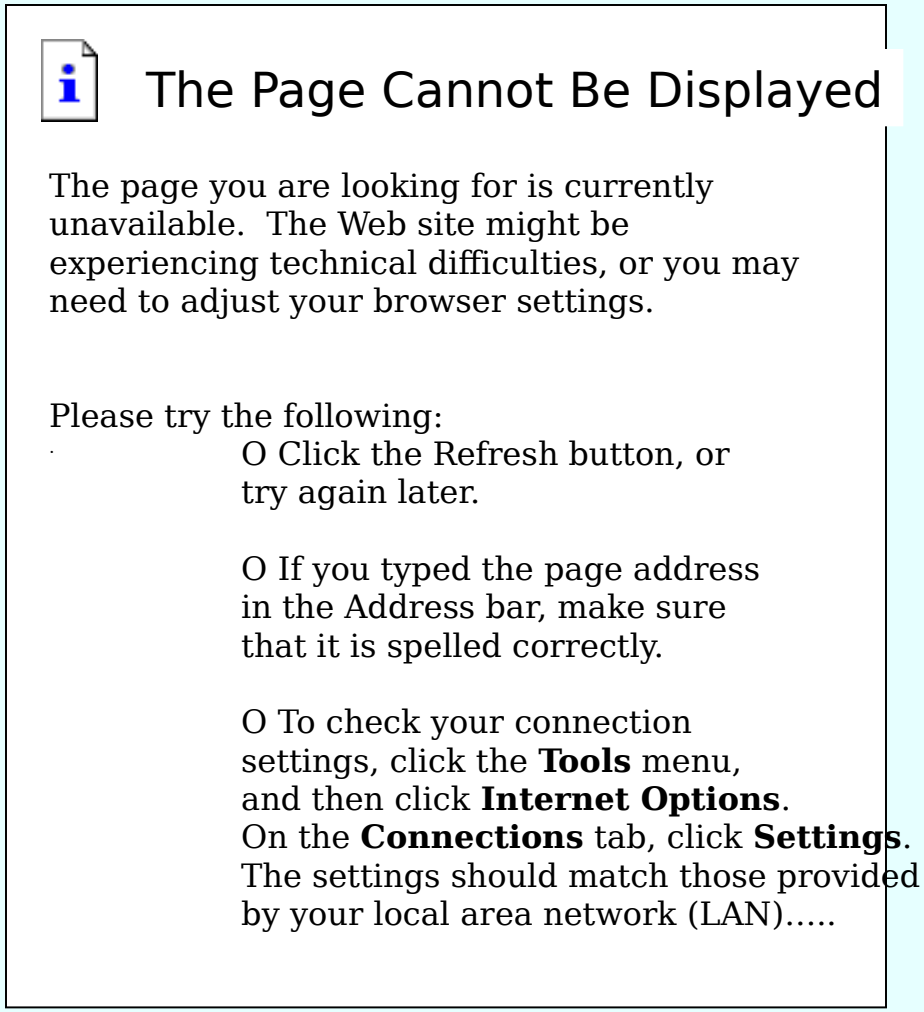


The Price of Compartmentalization



Klapp, 1983

Internet Restrictions: Costs to Readiness


The Page Cannot Be Displayed
The page you are looking for is currently unavailable. The Web site might be experiencing technical difficulties, or you may need to adjust your browser settings.
Please try the following:
O Click the Refresh button, or try again later.
O If you typed the page address in the Address bar, make sure that it is spelled correctly.
O To check your connection settings, click the Tools menu, and then click Internet Options.
On the Connections tab, click Settings.
The settings should match those provided by your local area network (LAN).....

- JFCOM: No access to JS DocNet
- PACOM: Shipboard training access curtailed (“hold on policy”)
- SOCOM: Individuals must request one-time access to RealPlayer, DocNet, etc.
- NDU: Access .mil to .edu curtailed

AFCA/USAFA Results

- Validated mobile code through firewall
- Clients reconfigured, participants asked to do daily tasks and self report problems
- 34/47 Workstations reported
- 5 mobile code problems reported
  - 2 minor
  - 2 moderate
  - 1 severe – Active X, program only worked on IE
- Complete list/number of URL's not available

(Preliminary) Interpretations

- No difference due to browser/OS version
- Not as many problems as anticipated
  - Java applets, not restricted as stated
    - Only if operating outside the ‘sandbox’
    - Policy to be clarified
  - Active X
    - Not widely used, or accessed
    - IE dependent, no problem in Netscape

However…

- Tested only technology used today
  - Not what is being developed
  - No emerging technologies
- Only Cat 1 tested was Active X
- No firewalls reconfigured to block code
- Accurate estimate of problems (??)
  - 9 of 40 suggested sites had problems

The “Self-Healing Internet”

- President’s Information Technology Advisory Committee Final Report,

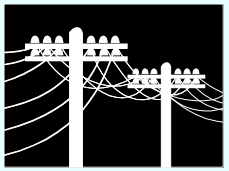
  (Feb 1999, Chapter 3)

- “Towards a Self-Healing Internet”,

  (CR, 000308)

Software Rehabilitation Concept

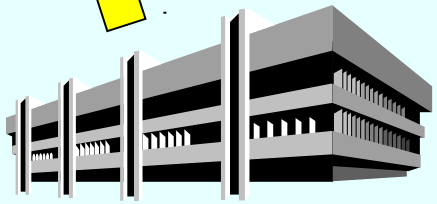
Detect
Malicious Use



Open
Accessible
Self-healing
Internet

Convene
Rehabilitation Panel

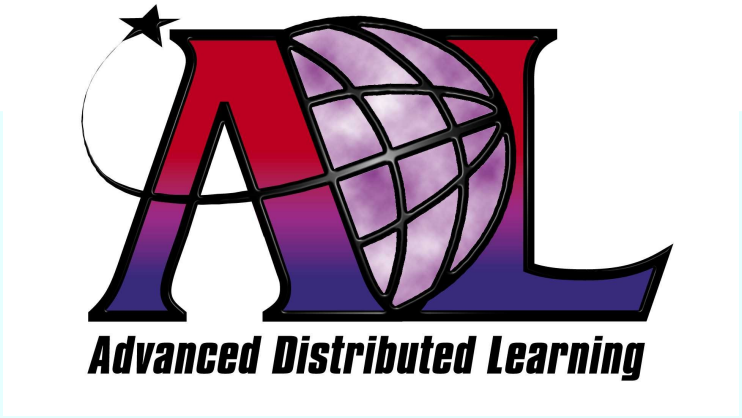
Rehabilitate Code



New Code
Trusted Server

Summary

- DoD Strategic Plan ✔
- DoD Implementation Plan ✔
- Sharable Courseware Object Ref Model ✔
- DoD Co-Laboratory ✔
- DoD ADL Portal Site ✔
- Content Conversion Process ✔
- Internet Infrastructure ✔



For additional information on the ADL Initiative

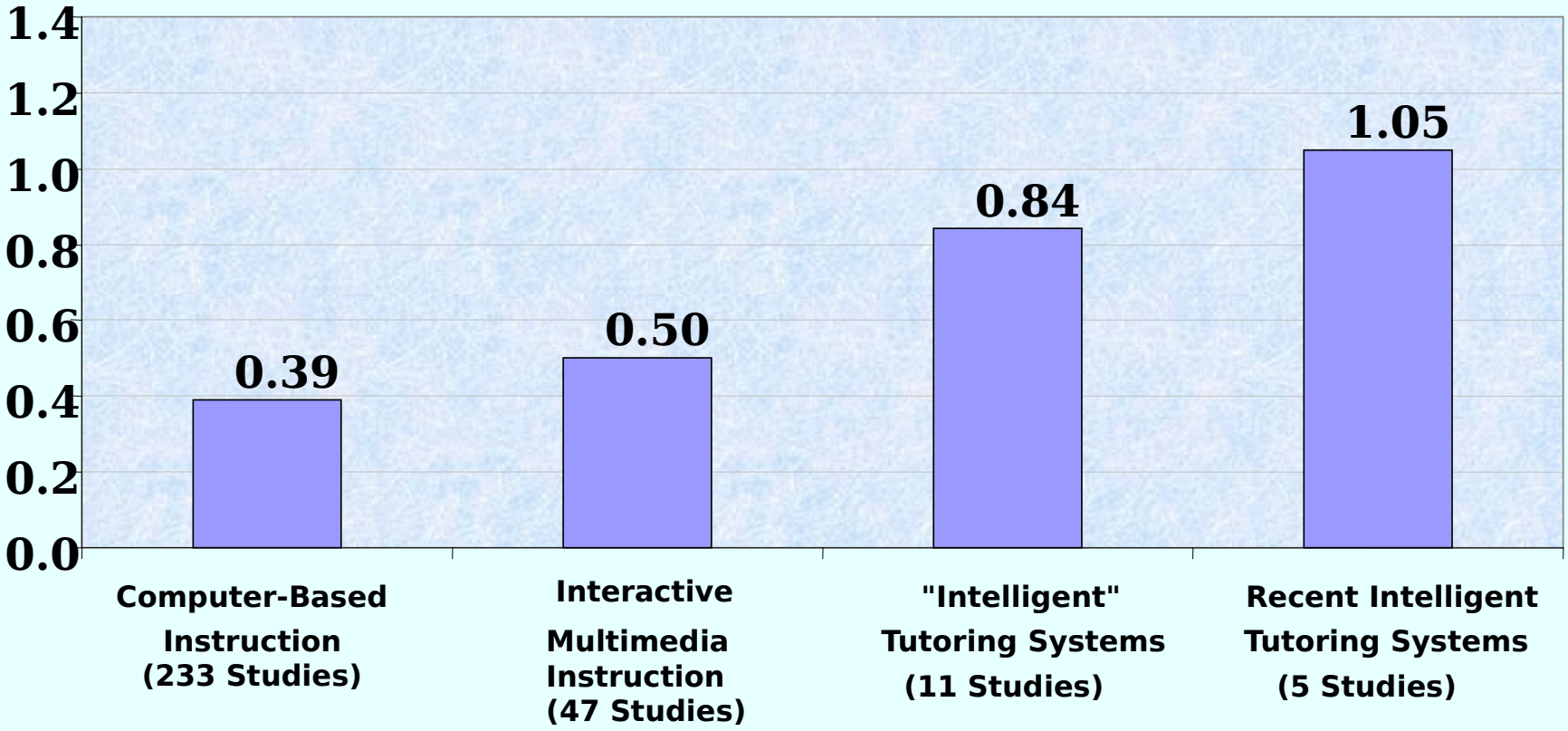
and to download v.1 .0 of the SCORM,

please visit us at:

http://www.adlnet.org

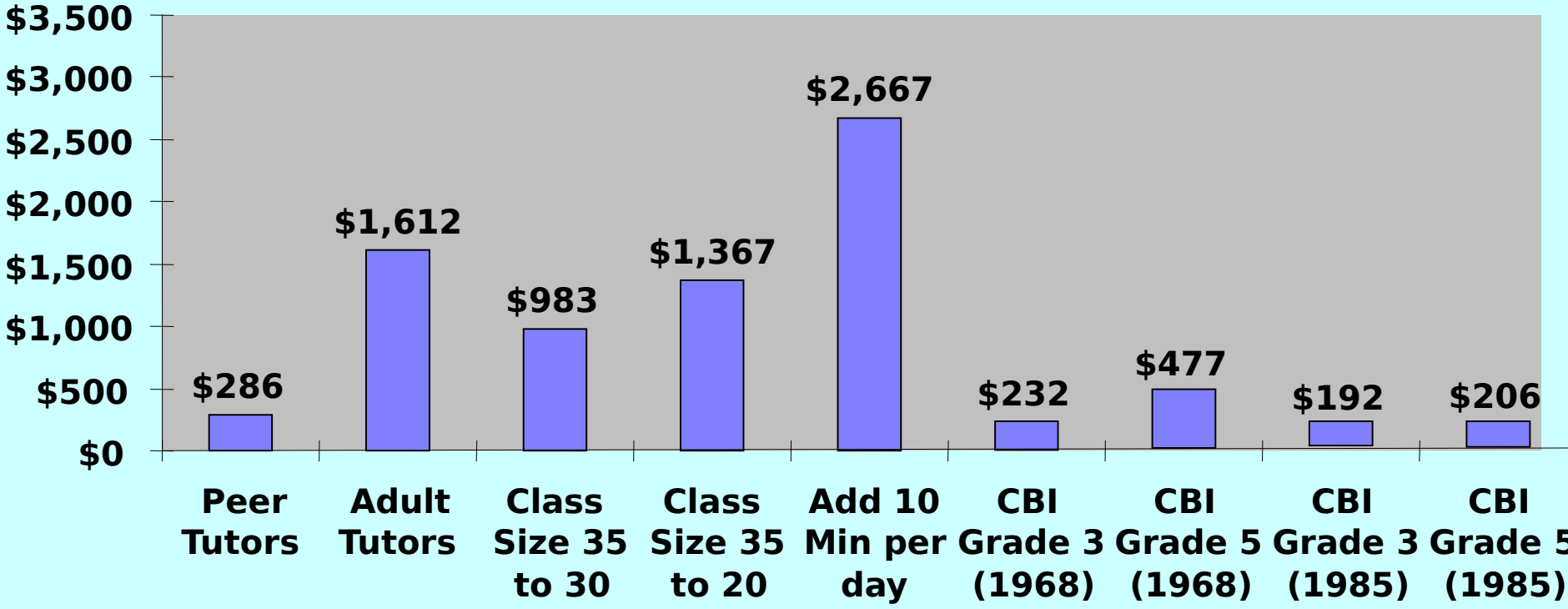
email: secretariat@adlnet.org

Improvement due to Technology-Based Instruction*



**Measured in Standard Deviations*

Cost to Increase Math Achievement by One Stand Deviation



From Fletcher, Hawley, & Piele, American Educational Research Journal, 1990, 27, 7

Percent Time Savings from Technology-based Instruction